Express Mail Label No. EV103617381US
Date of Deposit December 18, 2003
Docket Number 03-456-B

RETAINING-LOCKING SYSTEM FOR CHAIN LINK FENCE SLATS

Field of Invention

The invention pertains to privacy fences. More particularly, the invention relates to devices for retaining and locking privacy slats to chin link fences.

Background of the Invention

Chain link fences have many advantages. They provide strong barrier to entry, can be erected easily and inexpensively, are well adapted to hilly terrain and may be used for residential or industrial purposes. One disadvantage that they have is that they do not provide much privacy as one can readily see through them. To deal with this shortcoming, a number of solutions have been developed. Most common is the interspersing of various types of slats into the diamonds or openings in the fencing. As the fences are subject to wind, weather, gravity and vandalism these slates tend to become loose and shift downwardly.

A number of solutions to this shifting problem have been developed. U.S. Patent No. 4,570,906, issued to *Walden*, describes an assembly of slat members for insertion in a chain link fence includes a plurality of elongate, first slat members having opposed, substantially planar faces predimensioned to be interwoven between vertically consecutive links of the fence, each first slat member having one end formed with edges and a pair of resilient, spaced-apart flange members. The assembly also includes a second slat member having opposed, substantially planar faces predimensioned to be interwoven between horizontally consecutive, lower links of the fence for presenting an edge facing upwardly. The first slat members are downwardly positionable through the vertically consecutive links to a position whereby the

bottom edge of each first slat member abuts or seats upon the upwardly facing edge of the second slat member, with the flange members overlapping opposite faces of the second slat member.

U.S. Patent No. 4,723,761, issued to *Cluff* discloses a means for retaining slats woven flatwise through the links of a chain link fence. A receptacle is formed in each of the slats and a generally U-shaped clip member having legs engages respective receptacles in adjacent slats.

U.S. Patent No. 4,836,505, issued to *Meglino* describes a slat retainer for chain link fences of the type having a plurality of parallel slats woven through the fence wires. A strip member extends across the slats and is connected to each of the slats. The strip member preferably extends across the top area of the slats. A cover is mounted over the top of the slats and the strip.

U.S. Patent No. 4,860,997, issued to *Schoenheit et al.* describes a slat assembly for insertion in a chain link fence that includes a plurality of elongate, first slat members which are interwoven between vertically consecutive links of the fence. The first slat members rest on a second slat member that is interwoven between horizontally consecutive lower links in the fence. A flexible retainer is constructed and arranged to be received in apertures formed in the first slat members. The retainer has terminating means located at the ends thereof for securing the retainer to the slats.

U.S. Patent No. 4,950,098, issued to *Abbot et al.* discloses a slat fence retainer for retaining slats in a chain-link fence that includes a horizontally disposed slat-retaining element having a pair of spaced apart side walls, a base joining the bottom margin of the side walls and

an open top. The element includes a vertical-slat retention means. Plural, vertical slat elements are pre-dimensioned to be received in the links in the fence. Each vertical slat element has at least one substantially planar and resilient flange at its end and slots formed adjacent the end for engagement with the slat retention means to hold the vertical slat element in the fence.

U.S. Patent No. 4,995,591 issued to *Humphrey et al.* describes a chain link fencing employing slats inserted vertically through adjacent links into an open channel that is inserted horizontally through the lowermost or uppermost course of links, a means of locking the slats to the channel to prevent easy removal of the slats from the fencing. Each slat is manufactured with a notch near one end thereof, and the channel is manufactured with a continuous barb along each free edge, one of which will engage the notch on the slat when the slat is inserted perpendicularly into the channel. For ease of assembly, the end of each slat nearest the notch is beveled.

U.S. Patent No. 5,007,619, issued to *Sibeni* describes a chain link fence assembly that includes chain link wire fencing, a bottom horizontal channel, and a top horizontal channel. The assembly also includes a plurality of slats, which have lock tabs at their bottom ends. The bottom channel has a web, which has a plurality of spaced cutouts that receive the respective lock tabs. Each slat, which can be a vertical slat or a diagonal slat, has a central tubular portion, a left edge fin portion and a right edge fin portion. The lock tab, which is an extension of the slat tubular portion, has opposite edge recesses, which receive the opposite edges of its cutout, and has opposite projections, which hook behind the opposite edges of its cutout.

It is an objective of the present invention to provide a system for retaining privacy slats in the diamonds in chain link fences. It is a further objective to provide a retaining system that is readily usable with standard flat, tubular or single wall privacy slats. It is yet a further objective to provide a system that can be used with slats having either a vertical or horizontal orientation. It is a still further objective of the invention to provide a system that is not dependent upon the horizontal or vertical spacing of the slats. It is another objective of the invention to provide a system that cannot be easily disassembled for removal. Finally, it is an objective to provide a privacy slat retaining system that is inexpensive, durable and attractive in appearance.

While some of the objectives of the present invention are disclosed in the prior art, none of the inventions found include all of the requirements identified.

Summary of the Invention

(1) A retaining-locking system for chain link fence slats is provided. The system has a plurality of fence slat elements that are sized and shaped to be interwoven between consecutive links of a chain link fence. Each of the slat elements have a first end, a second end, a front surface, a back surface, a first side edge, a second side edge and a notch. The notch is orthogonally oriented to a long axis of the slat and is located between the first and second end and extends inwardly from the first side edge toward the second side edge for a first predetermined distance.

A retaining-locking strip is provided. The strip is formed of resilient material, having a first end, a second end, an inner surface, an outer surface, an upper edge, a lower edge and at least one securing protrusion. The securing protrusion has a base, a back surface, an upper

surface, a lower surface and is sized and shaped to fit slidably within the notch. The protrusion is located upon the outer surface of the strip. When the slat elements are interwoven into between consecutive links of a chain link fence with each of the notches aligned with one another, the retaining-locking strip inserted between the slat elements and the links, oriented orthogonally to the slats with the securing protrusion disposed within the slats, the strip will urge the slats toward the links, thereby retaining the slats within the chain link fence.

(2) In a variant of the invention, the notch in each of the slat elements is rectangular in cross-section.

(3) In another variant of the invention, the inner surface of the retaining-locking strip is concave and the outer surface of the retaining-locking strip is convex.

(4) In a further variant of the invention, the inner surface of the retaining-locking strip is substantially parallel to the outer surface of the retaining-locking strip when the strip is compressed between the securing protrusion and the inner surface.

(5) In still a further variant of the invention, the securing protrusion is relieved toward the outer surface of the retaining-locking strip, thereby conserving material.

(6) In another variant, a strengthening element is provided. The strengthening element is centrally disposed upon the inner surface of the retaining-locking strip and extends inwardly from the inner surface for a second predetermined distance and extends toward the upper and lower edges of the strip for a third predetermined distance. The strengthening element serves to make the strip more resilient.

(7) In a further variant, the base of the securing protrusion has a width greater than a width of the back surface of the protrusion.

(8) In still a further variant, either the first or second end of the slat element is pointed, thereby permitting the retaining-locking strip to be interwoven first between consecutive links of the chain link fence. Successive slat elements could then be interwoven orthogonally between consecutive links of the chain link fence, the pointed end permitting the slat element to compress the retaining-locking strip until the securing protrusion is aligned with the notch.

(9) In another variant, the base of the securing protrusion has a width less than a width of the back surface of the protrusion.

(10) In yet another variant, the inner surface of the retaining-locking strip is substantially flat and has upper and lower inward angled resilient retaining arms attached to the upper and lower edges of the strip, respectively.

(11) In a further variant, the slat elements are of tubular construction.

(12). In still a further variant, the slat elements include at least one internal reinforcing rib.

(13) In another variant, the inner surface of the retaining-locking strip is substantially flat and the outer surface of the strip is concave. The retaining-locking strip has at least one securing protrusion located adjacent at least one of either the upper edge or the lower edge of the strip.

(14) In yet another variant, the inner surface of the retaining-locking strip is concave and the outer surface of the retaining-locking strip is convex. The retaining-locking strip has at least one securing protrusion located at a point spaced from at least one of either the upper edge or the lower edge of the strip.

Description of the Drawings

Figure 1 is a front elevational view of the preferred embodiment of the invention illustrating insertion of a fence slat in a chain link fence with a notch at the bottom of the slat;

Figure 2 is a side elevational cross-section of the **Figure 1** embodiment taken along the line **2-2**;

Figure 2A is a side elevational cross-section of the **Figure 1** embodiment taken along the line **2-2** illustrating the fence slat locked in place;

Figure 3 is a side elevational cross-section of a second embodiment of the invention illustrating insertion of a fence slat in a chain link fence with a notch at the top of the slat;

Figure 4 is a perspective view of a first embodiment of a retaining-locking strip;

Figure 5 is a perspective view of a second embodiment of a retaining-locking strip;

Figure 6 is a perspective view of a third embodiment of a retaining-locking strip;

Figure 7 is a perspective view of a fourth embodiment of a retaining-locking strip;

Figure 8 is a perspective view of a fifth embodiment of a retaining-locking strip;

Figure 9 is a perspective view of a sixth embodiment of a retaining-locking strip;

Figure 10 is a perspective view of a seventh embodiment of a retaining-locking strip;

Figure 11 is a perspective view of an eighth embodiment of a retaining-locking strip;

Figure 12 is a perspective view of a ninth embodiment of a retaining-locking strip;

Figure 13 is a perspective view of a tenth embodiment of a retaining-locking strip;

Figure 14 is a side elevational cross-section view of an eleventh embodiment of a retaining-locking strip installed in a fence slat;

Figure 15 is a side elevational cross-section view of a twelfth embodiment of a retaining-locking strip installed in a fence slat with a smaller notch;

Figure 16 is a side elevational cross-section view of the fourth embodiment of the retaining-locking strip installed in a fence slat;

Figure 17 is a side elevational cross-section view of a thirteenth embodiment of a retaining-locking strip installed in a fence slat;

Figure 18 is a side elevational cross-section view of a fourteenth embodiment of a retaining-locking strip installed in a fence slat with a smaller notch; and

Figure 19 is a side elevational cross-section view of the first embodiment of the retaining-locking strip installed in a fence slat with a smaller notch.

Detailed Description of the Preferred Embodiment

(1) As illustrated in **Figures 1, 2, 2A** and **4**, a retaining-locking system **10** for chain link fence slats **15** is provided. The system **10** has a plurality of fence slat elements **20** that are sized and shaped to be interwoven between consecutive links **25** of a chain link fence. Each of the slat elements **20** have a first end **30**, a second end **35**, a front surface **40**, a back surface **45**, a first side edge **50**, a second side edge **55** and a notch **60**. The notch **60** is orthogonally oriented to a long axis **65** of the slat **15** and is located between the first **30** and second **35** end and extends inwardly from the first side edge **50** toward the second side edge **55** for a first predetermined distance **70**.

A retaining-locking strip is provided **75**. The strip **75** is formed of resilient material, having a first end **80**, a second end (not shown), an inner surface **90**, an outer surface **95**, an upper edge **100**, a lower edge **105** and at least one securing protrusion **110**. The securing

protrusion **110** has a base **115**, a back surface **120**, an upper surface **125**, a lower surface **130** and is sized and shaped to fit slidably within the notch **60**. The protrusion **110** is located upon the outer surface **95** of the strip **75**. When the slat elements **20** are interwoven into between consecutive links **25** of a chain link fence with each of the notches **60** aligned with one another, with the retaining-locking strip **75** inserted between the slat elements **20** and the links **25**, oriented orthogonally to the slats **15** with the securing protrusion **110** disposed within the slats **15**, the strip **75** will urge the slats **15** toward the links **25**, thereby retaining the slats **15** within the chain link fence.

(2) In a variant of the invention, the notch **60** in each of the slat elements **20** is rectangular in cross-section.

(3) In another variant of the invention, the inner surface **90** of the retaining-locking strip **75** is concave and the outer surface **95** of the strip **75** is convex.

(4) In a further variant of the invention, as illustrated in **Figures 16** and **17**, the inner surface **90** of the retaining-locking strip **75** is substantially parallel to the outer surface **95** of the strip **75** when the strip **75** is compressed between the securing protrusion **110** and the inner surface **90**.

(5) In still a further variant of the invention, as illustrated in **Figures 2, 2A, 3, 4, 8, 9, 10, 12, 13, 14, 17, 18** and **19**, the securing protrusion **110** is relieved toward the outer surface **95** of the retaining-locking strip **75**, thereby conserving material.

(6) In another variant, as illustrated in **Figure 5**, a strengthening element **135** is provided. The strengthening element **135** is centrally disposed upon the inner surface **90** of the retaining-locking strip **75** and extends inwardly from the inner surface **90** for a second predetermined distance **140** and extends toward the upper **100** and lower edges **105** of the strip

75 for a third predetermined distance **145**. The strengthening element **135** serves to make the strip **75** more resilient.

(7) In yet another variant, as illustrated in **Figure 6**, the base **115** of the securing protrusion **110** has a width **150** greater than a width **155** of the back surface **120** of the protrusion **110**.

(8) In still a further variant, as illustrated in **Figures 2, 2A,** and **3**, either the first **30** or second **35** end of the slat element **20** is pointed, thereby permitting the retaining-locking strip **75** to be interwoven first between consecutive links **25** of the chain link fence. Successive slat elements **20** could then be interwoven orthogonally between consecutive links **25** of the chain link fence, the pointed end permitting the slat element **20** to compress the retaining-locking strip **75** until the securing protrusion **110** is aligned with the notch **60**.

(9) In another variant, as illustrated in **Figure 7**, the base **115** of the securing protrusion **110** has a width **150** less than a width **155** of the back surface **120** of the protrusion **110**.

(10) In yet another variant **10**, as illustrated in **Figures 8** and **12**, the inner surface **90** of the retaining-locking strip **75** is substantially flat and has upper **160** and lower **165** inward angled resilient retaining arms attached to the upper **100** and lower **105** edges of the strip **75**, respectively.

(11) In a further variant, as illustrated in **Figure 16**, the slat elements **20** are of tubular construction.

(12). In still a further variant, as illustrated in **Figure 19**, the slat elements **20** include at least one internal reinforcing rib **170**.

(13) In another variant, as illustrated in **Figure 5**, the inner surface **90** of the retaining-locking strip **75** is substantially flat and the outer surface **95** of the strip **75** is concave. The

retaining-locking strip **75** has at least one securing protrusion **110** located adjacent at least one of either the upper edge **100** or the lower edge **105** of the strip **75**.

(14) In yet another variant, as illustrated in **Figure 18**, the inner surface **90** of the retaining-locking strip **75** is concave and the outer surface **95** of the strip **75** is convex. The retaining-locking strip **75** has at least one securing protrusion **110** located at a point **175** spaced from at least one of either the upper edge **100** or the lower edge **105** of the strip **75**.